

SERIES 131N HI-PERCARB



Kyocera SGS Precision Tools Case Study

INDUSTRY



ENGINEERING

MATERIAL

6061 ALUMINUM

PRODUCT

131N HI-PERCARB 5XD DRILL

APPLICATION

DRILLING

COMPETITOR

2 Flute Drill Internal Coolant Drill

COOLANT

FLOOD

TOOL INFORMATION

2.5" DIA / 2.087" LOC / 3.583" OAL



GOALS

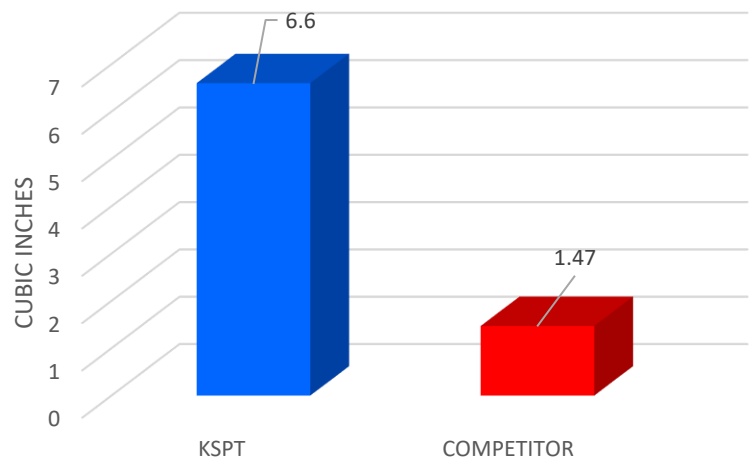
The goals of this study were to significantly reduce job cost through the implementation of superior tooling and increased manufacturing efficiencies.

STRATEGY

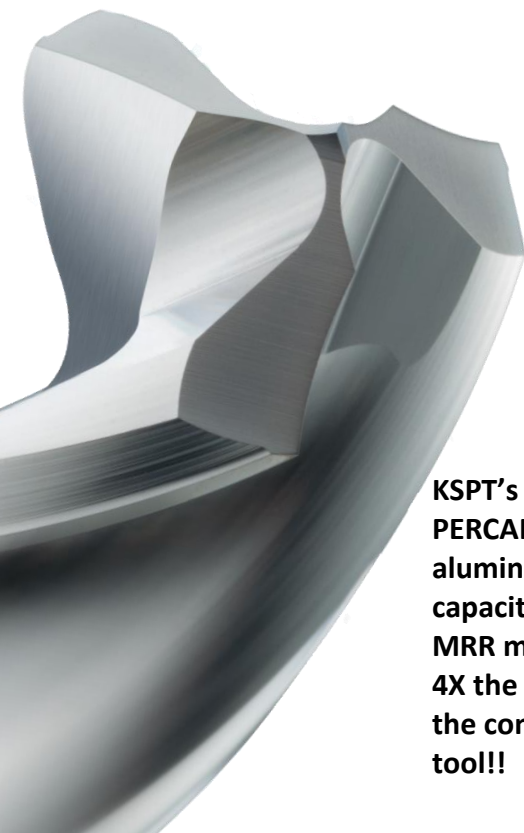
KSPT approached this job with a 3 flute HI-PERCARB aluminum drill. The tri-margin design offers superior surface finish and hole cylindricity. Additionally, the sculpted gash allows for a reduction of cutting forces over competitive three-flute designs.

	KSPT	COMPETITOR
TOOL DIAMETER	.250"	.250"
SPEED	12,224 RPM	6,000 RPM
FEED	134 IPM	30 IPM
RADIAL CUT (AE)	n/a	n/a
AXIAL CUT (AP)	1.25	1.25
CYCLE TIME	1:17	6:00

MATERIAL REMOVAL RATE



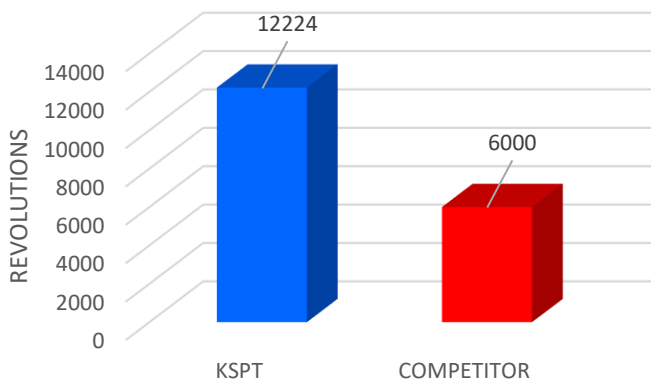
KSPT's HI-PERCARB aluminum drill capacitated an MRR more than 4X the rate of the competitor's tool!!



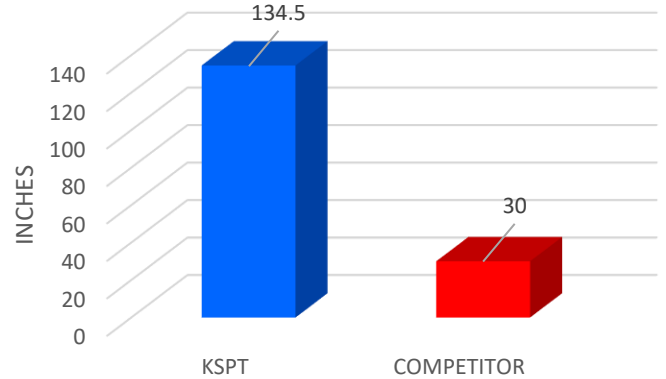
RESULTS

The overall findings of this study indicate although KSPT's HI-PERCARB aluminum drill outperformed the competitor's tool in efficiency and effectiveness. **The Hi-Percarb was able to take on a speed more than double that of the competitor's drill. Additionally, the feed rate was able to be increased to 4X the inches per minute of the other drill.** This led to the **Hi-Percarb's material removal rate being 4X higher** than the competitor's drill. That **reduced the cycle time** from 6 minutes with the competitor's drill to just under a minute and a half with the Hi-Percarb. With all the aforementioned efficiencies, the Hi-Percarb produced a **machining cost savings to the customer of over \$29,000!** That combined with amount saved in new tool cost, the customer's cost per part was reduced by over 77%. Ultimately, when all was said and done, KSPT's Hi-Percarb aluminum drill **saved the customer a total of \$29,556!!!**

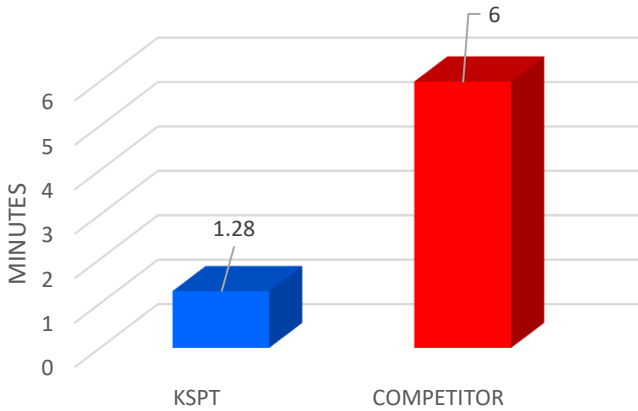
SPEED (RPM)



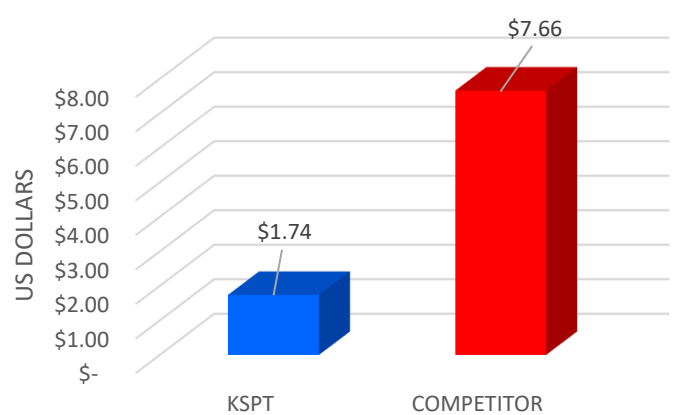
FEED (IPM)



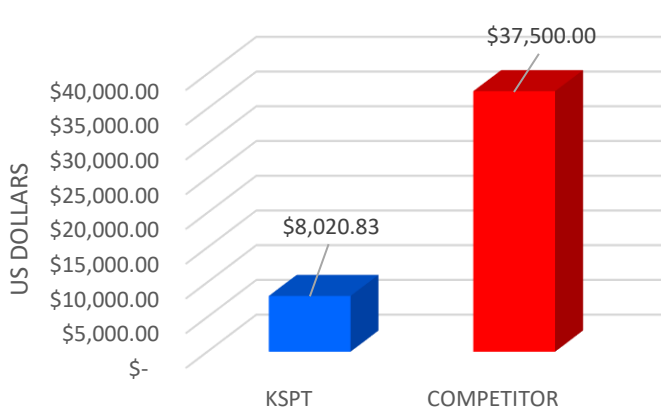
CYCLE TIME



TOTAL COST PER PART



TOTAL MACHINING COST



TOTAL COST

